



94-1-RE - 08/519,362

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

 Reissue
Application
of:

Richard G. Henry

Serial No.: 08/519,362

Filed: August 25, 1995

 For: LEAK DETECTION IN HEATING,
VENTILATING AND AIR CONDI-
TIONING SYSTEMS USING AN
ENVIRONMENTALLY SAFE
MATERIAL

Group Art Unit: 2212

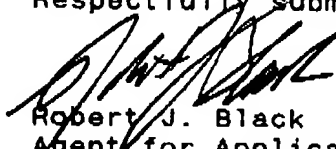
Examiner: J.D. Wiggins

SURRENDER OF PATENT IN ACCORDANCE WITH 37 CFR 1.8a
 Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

In view of the Examiner's phone conference of April 18, 1996, indicating that the subject reissue application is in condition for allowance, the original letters patent 5,421,192 is surrendered herewith.

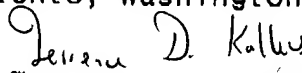
Respectfully submitted,


Robert J. Black
Agent for Applicant
Reg. No. 24,498

 Carpenter and Black
1400 Renaissance Drive, Suite 205
Park Ridge, IL 60068

CERTIFICATE OF MAILING (37 CFR 1.8a)

I hereby certify that this paper (along with any referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.


Terrence D. Kailey
Date: APRIL 3, 1996

*The
United
States
of
America*



The Commissioner of Patents and Trademarks

*Has received an application for a patent
for a new and useful invention. The title
and description of the invention are en-
closed. The requirements of law have
been complied with, and it has been de-
termined that a patent on the invention
shall be granted under the law.*

Therefore, this

United States Patent

*Grants to the person or persons having
title to this patent the right to exclude
others from making, using or selling the
invention throughout the United States
of America for the term of seventeen
years from the date of this patent, sub-
ject to the payment of maintenance fees
as provided by law.*

Bruce Lehman

Commissioner of Patents and Trademarks

Karna J. Cooper

Attest



US005421192A

United States Patent [19]**Henry**[11] **Patent Number:** **5,421,192**[45] **Date of Patent:** **Jun. 6, 1995**

[54] **LEAK DETECTION IN HEATING,
VENTILATING AND AIR CONDITIONING
SYSTEMS USING AN ENVIRONMENTALLY
SAFE MATERIAL**

[75] **Inventor:** **Richard G. Henry, Mayfield Heights,
Ohio**

[73] **Assignee:** **Bright Solutions, Inc., Bloomfield
Hills, Mich.**

[21] **Appl. No.:** **312,772**

[22] **Filed:** **Sep. 27, 1994**
(Under 37 CFR 1.47)

Related U.S. Application Data

[63] **Continuation-in-part of Ser. No. 81,119, Jun. 25, 1993,
Pat. No. 5,357,782.**

[51] **Int. Cl.⁶** **G01N 37/00**

[52] **U.S. Cl.** **73/40.7; 252/963;
252/962; 250/301**

[53] **Field of Search** **73/40.7, 40.5;
250/301.16, 301.21, 301.36, 301; 252/964, 963,
962**

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,234,045 2/1966 Larsen 73/40.7
3,572,085 3/1971 Packo 73/40.5
4,690,689 9/1987 Malcosky et al. 48/174

4,758,366 7/1988 Parekh 252/68
5,149,453 9/1992 Parekh 252/68
5,167,867 12/1992 Quaife et al. 252/408.1
5,279,967 1/1994 Bode 436/56
5,357,782 10/1994 Henry 73/40.7

Primary Examiner—Hezron E. Williams

Assistant Examiner—J. David Wiggins

Attorney, Agent, or Firm—Robert J. Black

[57]

ABSTRACT

The present invention relates to the effective leak detection of refrigerants by the addition of dyes from the general chemical class of naphthalimide fluorescent dyes in a refrigeration system where said refrigeration system employs alone, or in combination, a refrigerant in a hermetic system such as, but not limited to, chlorofluorocarbons (CFC), hydrochlorofluorocarbons (HCFC), hydrofluorocarbons (HFC) and any hydrogen, halogenated or ether derivatives of the methane, hydrogen, halogenated, ether or cyclic derivatives of either ethane, propane, butane, pentane, mixtures of HCFC, HFC, hydrocarbons, carbon dioxide and ammonia.

Leakage is determined by inspection of the sealed system using a lamp having an emission wavelength from 300 to 480 nanometers providing an indication of any system leakage.

15 Claims, No Drawings